



Chesaning Union Middle School

Energy Smart Pools Program

Based on the U.S. Department of Energy's RSPEC! Program

School Reduces Energy costs by 55%

As part of Chesaning Union Schools' ongoing energy conservation efforts, the school district looked to its swimming pool for savings. In a project designed to reduce pool energy losses, a pool cover system was purchased for the Middle School's indoor pool. Eight months after installation, the pool's energy costs have been cut in half. Mike Dewey, Superintendent of Chesaning Union Schools, is enthusiastic about the results of the pool cover installation. "The dollars saved by reducing pool energy losses only increases the amount of money we can put back into instructional programs." At a projected savings of over \$9,000 per year, the school district will benefit considerably from the low-cost project.

"Solar" Bubble Cover Effective for Indoor Pool

The pool covers that the Middle School purchased were an inexpensive model, called the bubble, or solar, cover. Superintendent Dewey says that the decision to purchase a cheaper model was based on the trial installation. "Although we didn't know how well it would work, the numbers were convincing. The bubble covers were purchased because they required little out-of-pocket expense and were projected to give us a 3-month payback."

Although some residents in the community were skeptical about the ability of a "solar" bubble pool cover to garner savings for an indoor pool, the results prove that bubble/solar covers are effective in preventing costly evaporation from indoor pools. Due to the benefits derived in just the first 8 months of installation, Superintendent Dewey is now sold on pool cover use. "When the present cover wears out, we'll buy another. It makes sense. We'll use the savings we've received from this cover to pay for a new, longer-lasting cover."



Fewer Chemicals Needed

In addition to saving energy dollars, the installation of the pool cover system reduced the water losses through evaporation, thus conserving make-up water. Water use for pool make-up water was reduced by an estimated 65%. The reduction in the amount of make-up water greatly reduced the chemical consumption, thus saving additional dollars. Prior to the pool cover installation, maintenance personnel added chemicals to the pool on a weekly basis. Since the use of the pool cover, chemicals have been reduced to once every ten days.

Community Acceptance

"There were some minor complaints at the beginning from senior citizens who use the pool. Their complaint was that the pool room temperature was lower now due to the pool cover. Of course, prior to using the pool cover, the pool room was a virtual sauna." After using the pool cover for 8 months, the community users have easily adjusted to the standard room temperature.

Additional Benefits

In addition to the dollar savings, the school's pool cover solved many structural problems caused by high humidity. Superintendent Dewey reported that "In winter, heat from the pool room caused heavy condensation to collect and freeze on the exterior block walls. Sheets of ice would build up, crack and then fall. Due to the contraction and expansion of the ice on the block walls, cracks began to show in the masonry." With the addition of the pool cover, humidity and heat from evaporation was lowered and the sheeting stopped. In addition, the high humidity from the pool room was causing concrete steps and doorways to crumble from the moisture. By reducing the amount of evaporation from the pool, humidity levels were lowered and further erosion was prevented.

Ease of Use

Due to the size of the pool, two pool covers and two reeling systems were needed. In order to make the covers easier to handle, two identical 23'x75' covers were chosen for the 45'x75' pool. The reeling systems are staggered, one at each end of the pool, and the two covers slightly overlap in the middle of the pool. The manual reeling systems are portable and can be rolled out of the way after the covers are reeled in. The pool is covered at night by the lifeguards, and the covers are reeled in the morning by maintenance staff. To make the covers easier to place at night, the covers were modified by attaching rope pull-handles. Maintenance staff say that the covers glide easily across the surface of the water, and that no real effort is needed. The two bubble pool covers and reel systems were purchased from a local pool supplier for \$2543. Although the inexpensive bubble covers are not expected to have a long life, the reeling systems can be used with a newer, longer lasting cover.

Types of Pool Covers

Pool covers are basically a large sheet of plastic which forms a vapor barrier. Manufactured pool covers offer higher quality plastic materials, such as polypropylene, vinyl, or UV stabilized polyethylene. The bubble, or solar, cover is similar to bubble packing material, except it is constructed from a higher grade of plastic and has UV inhibitor. Vinyl covers are constructed from a heavier material and will last longer than bubble covers. Insulated vinyl covers are also available to minimize evaporation.

Evaporated Heat Loss

Prior to the use of the pool cover at the Middle School, a great deal of heat and moisture escaped from the pool. "At one point, the pool room was so hot and humid, I was afraid that the air handling units weren't working," Superintendent Dewey said, and a mechanic was sent to check the ventilation system. With the pool now covered at nights and on weekends, the reduced heat and humidity from evaporation has brought the room temperature down to a comfortable level.

Reduce Swimming Pool Energy Costs!

The Chesaning Union Schools' pool cover system was partially funded by a former State of Michigan Smart Pools Program, based on (RSPEC!). The RSPEC! program was developed by the U.S. Department of Energy to assist pool owners to reduce swimming pool energy costs. The major culprit that RSPEC! targeted was pool losses caused by evaporation. As in the case of Chesaning Union Middle School, evaporation accounts for almost 70% of energy lost in pools. Compared to evaporation, all other pool energy losses are small. Savings generated from pool cover use can pay back the installation cost in less than a year. The 3-month pay-back for Chesaning Union's pool cover system is typical.

Feel free to contact us if you have any ideas for case studies or other questions :

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